

Appln No. 10/783,227

Amdt date December 23, 2004

Reply to Office action of October 4, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) An optical receiving apparatus, comprising:

a photodetector for converting a signal light input received from an optical transmission line to an electrical signal;

a signal brancher for branching the electrical signal from the photodetector to a first electrical signal component and a second electrical signal component;

a discriminator for discriminating the first electrical signal component;

a clock extractor for extracting a clock having an amplitude and a bit rate error from the second electrical signal component; and

a threshold controller for ~~controlling~~ generating a discrimination threshold of the discriminator according to the amplitude and the bit rate error of the extracted clock, wherein the discriminator discriminates the first electrical signal component according to the discrimination threshold ~~controlled~~ generated by the threshold controller.

2. (Currently Amended) The optical receiving apparatus of claim 1, further comprising a first linear amplifier ~~electrically~~ electrically coupled between the photodetector

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and the signal brancher for amplifying the electrical signal from the photodetector.

3. (Currently Amended) The optical receiving apparatus of claim 1, further comprising a second linear amplifier ~~electrically~~ electrically coupled between the clock extractor and the threshold controller for amplifying the extracted clock.

4. (Original) The optical receiving apparatus of claim 1, wherein the signal brancher simultaneously applies the electrical signal from the photodetector to the discriminator and the clock extractor.

5. (Currently Amended) The optical receiving apparatus of claim 1, wherein the signal brancher selectively applies the electrical signal from the photodetector to the discriminator ~~and~~ or the clock extractor.

6. (Original) The optical receiving apparatus of claim 1, wherein the threshold controller is preprogrammed with information to indicate a relation between the clock amplitude and an optimum threshold.

7. (Currently Amended) An optical receiving apparatus, comprising:

an optical signal brancher for branching a signal light input received from an optical transmission line to a

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first optical signal component and a second optical signal component;

a first photodetector for converting the first optical signal component to a first electrical signal;

a second photodetector for converting the second optical signal component to a second electrical signal;

a discriminator for discriminating the first electrical signal;

a clock extractor for extracting a clock having an amplitude and a bit rate error from the second electrical signal; and

a threshold controller for ~~controlling~~ generating a discrimination threshold of the discriminator according to the amplitude and the bit rate error of the extracted clock, wherein the discriminator discriminates the first electrical signal according to the discrimination threshold ~~controlled~~ generated by the threshold controller.

8. (Currently Amended) The optical receiving apparatus of claim 7, further comprising a first linear amplifier ~~electrically~~ electrically coupled between the first photodetector and the discriminator for amplifying the first electrical signal from the first photodetector.

9. (Currently Amended) The optical receiving apparatus of claim 7, further comprising a second linear amplifier ~~electrically~~ electrically coupled between the clock extractor and the threshold controller for amplifying the extracted clock.

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10. (Original) The optical receiving apparatus of claim 7, wherein the optical signal brancher simultaneously applies the signal light input to the first photodetector and the second photodetector.

11. (Currently Amended) The optical receiving apparatus of claim 7, wherein the optical signal brancher selectively applies the signal light input to the first photodetector ~~and~~ or the second photodetector.

12. (Original) The optical receiving apparatus of claim 7, wherein the threshold controller is preprogrammed with information to indicate a relation between the clock amplitude and an optimum threshold.

13. (Currently Amended) An optical receiving apparatus, comprising:

a signal brancher for branching an optical input signal received from an optical transmission line to a first signal component and a second signal component;

a clock extractor for extracting a clock having an amplitude and a bit rate error from the second signal component; and

a discriminator for discriminating the first signal component;

a threshold controller for ~~controlling~~ generating a discrimination threshold ~~of~~ for the discriminator according to

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the amplitude and the bit rate error of the extracted clock, ~~wherein the threshold controller is preprogrammed with information to indicate a relation between the clock amplitude and an optimum threshold.~~

14. (Original) The optical receiving apparatus of claim 13, further comprising a photodetector coupled before the signal brancher for converting the optical input signal to an electrical input signal, wherein the signal brancher branches the electrical input signal from the photodetector to the first signal component and the second signal component.

15. (Currently Amended) The optical receiving apparatus of claim 14, further comprising a first linear amplifier ~~electricalalally~~ electrically coupled between the photodetector and the signal brancher for amplifying the electrical input signal.

16. (Currently Amended) The optical receiving apparatus of claim 14, further comprising a second linear amplifier ~~electricalalally~~ electrically coupled between the clock extractor and the threshold controller for amplifying the extracted clock.

17. (Original) The optical receiving apparatus of claim 13, further comprising a first photodetector for converting the first signal component to a first electrical signal to be input to the discriminator, and a second photodetector for converting

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the second signal component to a second electrical signal to be input to the clock extractor.

18. (Currently Amended) The optical receiving apparatus of claim 17, further comprising a first linear amplifier ~~electricalalally~~ electrically coupled between the first photodetector and the discriminator for amplifying the first electrical signal from the first photodetector.

19. (Currently Amended) The optical receiving apparatus of claim 17, further comprising a second linear amplifier ~~electricalalally~~ electrically coupled between the clock extractor and the threshold controller for amplifying the extracted clock.

20. (Currently Amended) An optical receiving apparatus, comprising:

a photodetector for converting an optical signal input from an optical transmission line to an electrical signal;

a clock extractor for extracting a clock from the electrical signal;

~~a threshold controller for determining a signal receiving discrimination threshold according to an amplitude of the extracted clock from the clock extractor~~ programmed with information about clock amplitude versus threshold characteristics for determining a signal receiving discrimination threshold by collating an amplitude of the extracted clock from the clock extractor with the clock amplitude versus threshold characteristics; and

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a discriminator for discriminating the electrical signal according to the signal receiving discrimination threshold determined by the threshold controller.

21. Canceled.

22. (Currently Amended) The optical receiving apparatus of claim 20, further comprising a signal brancher for branching the electrical signal from the photodetector to a first electrical signal component and a second electrical signal component~~7~~.

23. (Original) The optical receiving apparatus of claim 22, wherein the signal brancher simultaneously applies the electrical signal from the photodetector to the discriminator and the clock extractor.

24. (Original) The optical receiving apparatus of claim 22, wherein the signal brancher selectively applies the electrical signal from the photodetector to the discriminator and the clock extractor.

25. (Currently Amended) ~~An~~ A method for optical reception, comprising:

converting an optical signal input from an optical transmission line to an electrical signal;

extracting a clock from the electrical signal;

storing information about clock amplitude versus threshold characteristics

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determining a signal receiving discrimination threshold according to an amplitude of the clock by collating an amplitude of the extracted clock with clock amplitude versus threshold characteristics; and

discriminating the electrical signal according to the determined signal receiving discrimination threshold.

26. Canceled.